Generic Solvers Website Guide

CMSC 150 Interpolation and Regression

Solver Information:		Solver Information:	
Name:	**Quadratic Spline Interpolation**	**Name:**	**Polynomial Regression**
Developer:	**Jomar P. Monreal**	**Developer:**	**Jomar P. Monreal**
Version:	**1.0.0**	**Version:**	**1.0.0**
Date:	**16/12/2023**	**Date:**	**16/12/2023**

1. Introduction:

Purpose of the Website:

This generic solver can be used to perform interpolation and regression of any given data.

Intended Audience:

Students, teachers, researchers, and other peers interested with interpolation and regression of data.

2. Package Contents:

List of Items:

- genericSolver.html
- images folder containing essential images
- data folder containing .csv and .json files

3. Safety Instructions:

General Precautions:

- Scan the file for viruses before running on local server.

4. Setup Instructions:

Installation:

- Download and extract the .zip file anywhere in your personal computer.
- Open genericSolver.html on any browser you wish.

5. Operating Instructions:

Quadratic Spline Interpolation:

- Upload the .csv file you wish to perform interpolation on.
- Enter the value of x you want to estimate. It has to be within the interval of the .csv file you uploaded.
- Click “Submit”.
- The solver should show the interval and its corresponding function that encloses x highlighted. The function highlighted will be used to estimate f(x).

Polynomial Regression:

- Upload the .csv file you wish to perform interpolation on.
- Enter the degree of polynomial regression. It has to be less than the number of data points in the csv file uploaded.
- Click “Submit”
- Enter the value of x you want to estimate.
- The solver should show the polynomial regression function, as well as the estimated y value at the given x value.

6. Troubleshooting:

Problem:

polyRegression.js:68 Uncaught (in promise) TypeError: conductPolynomialRegression is not a function or its return value is not iterable

Potential Solution:

Enter a polynomial degree that is less than the number of data points in the csv uploaded.

7. FAQs:

Q: Why does it look like a Google Form?

A: The developer was inspired from its design.

8. Appendix:

Additional Resources:

CMSC 150 Laboratory Topic 6 Regression

Quadratic Spline Interpolation Example | Numerical Methods
https://youtu.be/9c6hXaRFBM0?si=6IlIitsSosd2AUKa

Cubic Spline Interpolation Theory | Numerical Methods

https://youtu.be/r7B6L1bbS8s?si=dVXHD48RiSa7pdYB

Diet Problem Solver Website Guide

CMSC 150 Linear Programming and Simplex Method

Solver Information:

Name: **Diet Problem Solver**

Developer: **Jomar P. Monreal**

Version: **1.0.0**

Date: **16/12/2023**

1. Introduction:

Purpose of the Website:

The specific objective of this solver is to find the cheapest and most nutritious combination of foods that will satisfy all the daily nutritional requirements of an individual. The problem is formulated as a linear program where the objective is to minimize cost and meet constraints but will still satisfy the nutritional needs. We include constraints that regulate the number of calories and amounts of vitamins, minerals, fats, sodium and cholesterol in the diet. A certain food option may only have 0-10 servings.

Intended Audience:

Nutritionist, dieticians, and people on diet

2. Package Contents:

List of Items:

- dietSolver.html
- images folder containing essential images
- data folder containing .csv and .json files

3. Safety Instructions:

General Precautions:

- Scan the file for viruses before running on local server.

4. Setup Instructions:

Installation:

- Download and extract the .zip file anywhere in your personal computer.
- Open dietSolver.html on any browser you wish.

5. Operating Instructions:

Usage:

- Check all the food you might want to consider in your diet.
- Click “Submit”.
- The diet plan table should show up displaying the foods you should take and how much is it.
- It should also show the total cost of the optimal diet is.
- Click “Clear form” to clear check boxes.

6. Troubleshooting:

Problem:

Infeasible solutions

Potential Solution:

It should show that “The cost of this optimal diet is impossible to find”.

7. FAQs:

Q: Why does it look like a Google Form?

A: The developer was inspired from its design.

8. Appendix:

Additional Resources:

CMSC 150 Laboratory Topic 5 Simplex Method